JAMA Clinical Guidelines Synopsis

Caring for Pediatric Patients With Sepsis

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GUIDELINE TITLE Surviving Sepsis Campaign International Guidelines for the Management of Sepsis and Septic Shock in Children 2026

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PRIOR VERSION 2020

DEVELOPER AND FUNDING SOURCE Society of Critical Care Medicine (SCCM) and European Society of Intensive Care Medicine (ESICM)

TARGET POPULATION Children with probable or confirmed sepsis or suspected or confirmed septic shock (infants with gestational age ≥37 weeks at birth to adolescents aged <18 years)

MAJOR RECOMMENDATIONS

- For children with sepsis or septic shock with documented bloodstream infection, hospitals should implement routine infectious diseases or medical microbiology consultation for management advice (conditional recommendation [CR]; very low certainty of evidence [COE]).
- Blood lactate should be measured to assess global tissue perfusion as part of initial evaluation and management (strong recommendation [SR]; very low COE).
- Cardiac and lung point-of-care ultrasound (POCUS) are suggested to guide resuscitation (CR; low COE).
- When intensive care is unavailable, fluid bolus therapy should be avoided in children with sepsis (SR; high COE) unless they have hypotension (CR; low COE).
- For intubated children, supplemental oxygen titrated to target a conservative range (Spo_2, 88%-92%) instead of a more liberal target (Spo_2 >94%) is suggested (CR; moderate COE).

Summary of the Clinical Problem

Sepsis and septic shock are leading causes of pediatric death and disability worldwide.[1] To facilitate their identification, international groups recently developed and validated the Phoenix sepsis criteria, which were designed for use in both lower- and higher-resource settings.[2,3] This synopsis highlights key recommendations from the 2026 guidelines for children with sepsis or septic shock.[4]

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Characteristics of the Guideline Source

The SCCM and ESICM governing bodies appointed a 68-person panel to address the diagnosis, assessment, management, and follow-up of pediatric patients with sepsis or septic shock. The Grading of Recommendations, Assessment, Development, and Evaluations (GRADE) approach was used to rate COE. Strong recommendations mean that most patients should receive or avoid the intervention, whereas CRs are suggestions to implement decisions that may vary depending on patient values, clinical circumstances, or resource availability (eTable in the Supplement). The guidelines include 61 statements: 5 SRs, 24 CRs, 10 good practice statements indicating unequivocal benefit or harm of an intervention despite lack of direct evidence, and 22 statements of insufficient COE to issue a recommendation.

Evidence Base

Optimal management of sepsis requires effective management of antimicrobial medications, and input from infectious disease experts has been shown to improve the care of children with sepsis. In a retrospective cohort study[5] including 100 hospitalized children (aged ≤18 years) with *Staphylococcus aureus* bacteremia, those who received an infectious disease consult had higher rates of appropriate directed antibiotics within 24 hours vs those without an infectious disease consult (98% vs 76%) and more appropriate duration of antibiotic therapy (95% vs 53%). In a meta-analysis of 4 observational studies (621 patients), the mortality rate was lower in those receiving consultation from infectious disease experts vs those receiving usual care (4.7% vs 8.8%).[4]

High lactate levels are a marker of poor tissue perfusion and are correlated with increased mortality in children with clinically suspected sepsis. In an observational study[6] including patients (aged 60 days-18 years) presenting to the emergency department with suspected sepsis, those with a higher serum lactate level (4.8% with >36 mg/dL) had increased risk of 30-day mortality vs a lower level (1.7% with ≤36 mg/dL) (adjusted odds ratio [OR], 3.26; 95% CI, 1.16-9.16).

The use of cardiac and lung POCUS aids in the management of pediatric patients with sepsis or septic shock. In a retrospective study[7] including 71 patients (aged <18 years) with suspected septic shock admitted to pediatric intensive care units, use of focused cardiac ultrasound changed the clinician-assessed hemodynamic characterization of patients in 67% of cases. The hemodynamic characterizations from clinicians using POCUS were concordant with an expert consensus algorithm (κ = 0.66; 95% CI, 0.51-0.80).[7] However, in a meta-analysis of 2 small trials (146 patients), mortality rates were not significantly different among those randomized to resuscitation with POCUS vs without POCUS (21.9% vs 31.5%).[4]

A trial including 3141 children who had severe febrile illness with hypoperfusion (capillary refill time of ≥3 seconds, lower-limb temperature gradient, weak radial pulse volume, or severe tachycardia) but not severe age-adjusted hypotension in 3 resource-limited countries in Africa assigned patients to an initial 20 mL/kg fluid bolus with albumin or saline or no bolus (control).[8] Mortality at 48 hours was higher among children receiving an albumin bolus (10.6%) or a saline bolus (10.5%) compared with no bolus (7.3%).[8] When intensive care is not available, the guideline strongly recommends against

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using boluses in children in the absence of severe hypotension (defined as systolic blood pressure <50 mm Hg [aged <12 months], <60 mm Hg [aged 1-5 years], and <70 mm Hg [aged >5 years]). Among children mechanically ventilated for septic shock, the benefits of treatment with supplemental oxygen to correct hypoxia must be balanced against the potential risks of hyperoxia, which may lead to worse clinical outcomes. A randomized clinical trial (RCT) including 2040 children[9] (aged 38 weeks-16 years) in pediatric intensive care units evaluated clinical outcomes in those receiving mechanical ventilation with a conservative oxygenation target (Spo_2, 88%-92%) vs a more liberal target (Spo_2 >94%). Patients treated with the conservative oxygenation target had fewer poor outcomes (mortality and days of respiratory, cardiovascular, or kidney support) vs the liberal target (adjusted OR, 0.84; 95% CI, 0.72-0.99).[9] However, these results suggest only a 53% probability that a randomly selected patient in the conservative oxygenation target group would have a more favorable outcome than a randomly selected patient from the liberal group.

Comparison With 2020 Guidelines

The 2026 guidelines contain 13 statements that were updated from the 2020 guidelines.[10] These include the SR that hospitals implement a performance improvement program for pediatric sepsis and measure blood lactate during an initial evaluation and in the management of children with probable sepsis or suspected septic shock. The new guidelines reaffirm the SR to start antimicrobial therapy within 1 hour for children with suspected septic shock and the suggestion to start antimicrobial therapy as soon as possible (ideally ≤3 hours) for children with suspected sepsis without shock. When timely evaluation is not possible (eg, a late presentation to the hospital), good practice entails starting antibiotics as soon as possible. The guidelines also suggest a target central venous oxygen saturation (≥70%) when central venous access is available, and to use high-volume hemofiltration rather than standard hemofiltration for children requiring kidney replacement therapy.

The 2026 guidelines cover 20 new topics, including a routine infectious disease consultation for children with sepsis and documented bloodstream infection, and not routinely using procalcitonin to guide deescalation of antibiotic therapy when effective antimicrobial stewardship programs are in place. Good practice statements suggest that resuscitation should be guided by ongoing assessment of hemodynamic markers (heart rate, blood pressure, and other clinical measures) and that it is reasonable to consider active measures (eg, fluid restriction or diuretics) to decrease the risk of fluid overload in children after hemodynamic stability is achieved.

Areas in Need of Future Study

The guideline panel noted 27 of their 29 recommendations were based on low or very low COE. For 22 topics, no recommendation or only a good practice statement could be issued. Several RCTs are investigating crystalloid fluid type, timing of initiation of vasoactive medications, optimal blood pressure targets, and treatment with corticosteroids or other immunomodulating agents. Research is also needed on how to best integrate initial and serial lactate measurements into ongoing sepsis resuscitation. There is insufficient evidence on several topics updated from the prior guidelines such as the implementation of systematic sepsis screening among acutely ill children; use of advanced hemodynamic monitoring in septic shock (eg, calibrated pulse contour analysis); use of epinephrine vs norepinephrine as a first-line vasoactive medication; treating hemodynamically unstable children with intravenous hydrocortisone; and targeting normothermia vs a permissive approach to fever. Among the newly evaluated topics, there was insufficient evidence on molecular testing for pathogen detection or identification, continuous vs extended infusion strategy for β-lactam antibiotics, sodium bicarbonate for metabolic acidemia, extracorporeal blood purification, whether to taper or discontinue immunosuppressive therapies or use them for hyperferritinemia, immune stimulants for leukopenia or immunoparalysis, and targeted posthospital follow-up.

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